

CLAIMS

1. A process of preparing a continuous filament composed of a nano fiber,

5        wherein nano fibers are prepared by spinning a polymer spinning dope in a spinning dope main tank (20) onto the surface of water or organic solvent (4a) of a collector (4), which contains water or inorganic solvent (4a) and has a conductive material (5) with a high voltage applied sunken in the water or organic solvent (4a), through  
10        nozzles (2) with a high voltage applied, and

         the nano fibers spun onto the surface of water or organic solvent (4a) are pressed, drawn, dried and wound while being pulled by a rotary roller (6) rotating at a constant linear velocity from the location spaced more than 1cm from one end of a dropping spot.

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2. The process of claim 1, wherein the conductive material (5) is a metal plate or metal powder.

3. The process of claim 1, wherein the distance (h) from the  
20        surface of water or organic solvent (4a) contained in the collector (4) to the top surface of the conductive material (5) is 0.01 to 200 mm.

4. The process of claim 1, wherein the distance (h) from the  
         surface of water or organic solvent (4a) contained in the collector (4) to  
25        the top surface of the conductive material (5) is 5 to 50 mm.

5. The process of claim 1, wherein the angle( $\theta$ ) between the nano fibers collected on the surface of water or organic solvent (4a) in the collector (4) and the undrawn filament (aggregate of nano fibers) pulled by the rotary roller (6) is 0 to 180°.

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6. The process of claim 1, wherein the angle( $\theta$ ) between the nano fibers collected on the surface of water or organic solvent (4a) in the collector (4) and the undrawn filament (aggregate of nano fibers) pulled by the rotary roller (6) is 10 to 90°.

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7. The process of claim 1, wherein the drawn filament (yarn) is twisted before being wound.

8. The process of claim 1, wherein the diameter of the nano  
15 fibers is less than 1,000 nm.

9. The process of claim 1, wherein the polymer spinning dope is composed of polyester resin, nylon resin, polysulfon resin, poly lactic acid and a copolymer thereof or a mixture thereof.

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10. The process of claim 1, wherein more than two kinds of the polymer spinning dope are spun onto the surface of water of organic solvent (4a) of the collector (4), which contains water or organic solvent (4a) and has the conductive material (5) with a high voltage applied  
25 sunken in the water or organic solvent (4a), through each of the nozzles (2).